

## Relations industrielles Industrial Relations



### Research Gaps in Labour Market and Labour Force Information

## Marché du travail et main-d'oeuvre : quelques lacunes de l'état actuel de la recherche sur ce sujet

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#### Résumé de l'article

La tâche qui m'incombe consiste à signaler la faiblesse actuelle de notre compréhension du marché du travail et à indiquer quelques secteurs où une recherche systématique s'avère nécessaire.

La recherche sur la main-d'oeuvre et le marché du travail pourrait couvrir les trois aspects suivants : 1) la préparation des jeunes pour leur entrée éventuelle sur le marché du travail ; 2) les mécanismes et processus qui facilitent l'allocation de la main-d'oeuvre en longue période ; 3) les mécanismes d'ajustement de la main-d'oeuvre à des changements inattendus en courte période.

Ces aspects de la recherche sont étroitement reliés aux objectifs qui s'insèrent dans une politique d'emploi. L'utilisation efficace de la main-d'oeuvre en donnant aux individus la possibilité de se développer et de contribuer selon leurs capacités et la réduction au minimum des ressources non-utilisées constituent deux de ces objectifs. La réalisation de ceux-ci pourrait être facilitée en communiquant les résultats de la recherche au gouvernement en vue de ses décisions en matière de politique fiscale et monétaire et aux dirigeants de l'entreprise privée en vue de leurs décisions concernant leur besoin de main-d'oeuvre.

La préparation des jeunes pour le marché du travail comporte une période de formation théorique et pratique. Diverses institutions comme les écoles de métiers et d'apprentissage, les écoles techniques, les écoles normales, les programmes d'entraînement au sein de l'entreprise privée et les cours du soir exercent une influence sur l'orientation des individus à l'endroit du marché du travail. À ce stade, on doit s'interroger sur l'allocation efficace des investissements qui maintiennent ces institutions, par exemple, une préparation au sein de l'entreprise serait-elle plus économique que celle offerte par les écoles ? On pourrait aussi investiguer la façon dont ces institutions s'adaptent aux changements technologiques et sociaux, et les mécanismes par lesquels l'industrie transmet aux écoles ses besoins de main-d'oeuvre. La recherche pourrait porter aussi sur la façon dont les jeunes se répartissent au sein de ces écoles selon leurs aptitudes et la façon dont les écoles influencent le choix d'une carrière.

Les prévisions à long terme de la demande pour la main-d'oeuvre peuvent influencer les individus dans le choix d'une occupation. L'exactitude de ces prévisions peut être améliorée par une étude des relations entre le taux d'accroissement de la production nationale et le taux des investissements, par un estimé du taux de participation des individus à la force de travail.

Les facteurs qui conditionnent l'allocation des ressources humaines en longue période constituent un deuxième secteur offrant des possibilités pour la recherche. Auparavant, la recherche doit se faire au niveau des caractéristiques des occupations et de la main-d'oeuvre. Ensuite, on doit s'interroger sur l'efficacité du mécanisme des prix qui préside à l'allocation de la main-d'oeuvre. Puisque ceux qui se préparent à entrer sur le marché du travail ne possèdent pas une connaissance adéquate des exigences futures de l'économie d'un pays, l'ajustement entre ce qui est exigé et ce qu'on prépare maintenant peut s'avérer très mauvais. L'efficacité du mécanisme des prix peut être reliée aux points suivants : Dans quelle mesure l'établissement du salaire pour une occupation donnée reflète-t-il une situation de concurrence ? Dans quelle mesure les taux de salaires influencent-ils la formation d'une main-d'oeuvre en qualité et quantité adéquates ? Dans quelle mesure les taux de salaire conditionnent-ils la répartition de la main-d'oeuvre nécessaire pour parer aux exigences toujours changeantes de l'économie ? Quels sont les facteurs qui expliquent la mobilité spatiale et occupationnelle de la main-d'oeuvre ? Quels sont les correctifs qu'un système peut offrir pour enrayer l'inefficacité de l'allocation de la main-d'oeuvre ?

Plusieurs ajustements de courte période sont possibles et la connaissance sur ce sujet ne manque pas. On pourrait certainement effectuer une recherche fructueuse dans les deux secteurs précédents, mais il serait aussi utile d'étudier les relations entre les mécanismes d'ajustement de courte période et ceux de la distribution de la main-d'oeuvre en longue période.

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# Research Gaps in Labour Market and Labour Force Information

Gil Schonning

*The purpose of the following paper is to point out some research gaps in labour market and labour force information. At the same time, the author outlines some areas where research seems to be necessary. The initial preparatory stage of manpower, the mechanisms of the short and long-run allocation of manpower encompass three important aspects that future research activities must cover. \**

I have been asked to identify some of the more important gaps in our knowledge and understanding about manpower.

At first glance, this appeared to be a fairly simple task. While a great deal of useful research has been done on various aspects of industrial relations, much less research has been carried out, particularly outside the Federal Government, on manpower as a factor in the production of goods and services. Secondly, the task of identifying promising areas for research on manpower did not seem to require me to prove anything in particular except the need for research.

However, I soon discovered that my task was not as simple as it had first appeared to be. Of course, I could have presented a great many unrelated research areas on manpower. Unfortunately, we tend to do far too much of this. I therefore decided to try to identify and assemble adequate information about three broad, distinguishable aspects of manpower which have considerable relevance for certain manpower objectives.

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We can readily recognize these three major aspects of manpower.

1. The first aspect I shall explore for research possibilities is what may be termed the initial preparatory stage of manpower. That is, the processes and activities which go into preparing the young for the world of work. For my purpose, I shall assume that the major functions which make up this aspect of manpower are primarily directed at preparing people for work.

I have termed this aspect the initial preparatory stage to distinguish it from the further preparation that the adult working population receives through experience, upgrading, etc., within the world of work. This stage of manpower development is simply a continuation of the first one, with the elements of working for pay and profits added. I do not intend to deal directly with this feature of manpower.

2. The second aspect concerns the mechanism or processes by which manpower is allocated over time in line with changing needs and developments of the economy. It is known that industries rise and fall over time in line with their competitive powers, technology advances and changes and new industries emerge. These changes cause an ebb and flow in employment and particularly in employment by occupations. Frequently, they occur at differential rates throughout the country. In view of this, what do we know about the processes which enable manpower to be allocated along the lines of these shifting needs and developments of the economy?

3. The third aspect of manpower concerns the processes by which manpower is adjusted to sudden changes in employment and in levels of occupational skills. The need for adjustment on the part of manpower results from various changes in industry, such as technological advances and changes, introduction of automation, depletion of mines or other resources, exit or locational shifts of firms, etc. We have done some research on this aspect of manpower and have become impressed with the importance of the short-run adjustment function. How and how well manpower is being suitably adjusted is not entirely clear, but the evidence suggests that the so-called labour market mechanism operates much less effectively in the short than in the long run. It is also quite probable, to the extent that the short-run adjustment process of manpower could be facilitated and improved upon, that we might also find an improvement in the longer run process which allocates manpower.

These are three major aspects of manpower which offer many promising areas of research. I shall deal primarily with the first two aspects, although I believe the three aspects are closely interrelated.

I do not intend to carve out precise research areas as such, but I shall suggest areas for investigation, either by raising questions about certain features and functions or by indicating where sufficient information is lacking or may need revision. I do not claim that my suggestions will exhaust the scope of research possibilities or that they will turn out to be the most important. Unfortunately, we have not yet developed a « geiger counter » that would assist us in locating high-yield veins for manpower research. In the absence of this, we should try to re-orientate our research on manpower in such a way as to improve our understanding about the role of manpower and the processes or mechanisms which make it effective as a contributor to output of goods and services in a free economy. Efforts to focus our research on certain over-all key questions and key aspects of manpower may help to avoid the shallow drilling and dry holes which are a characteristic of some research in this field.

I mentioned earlier that the aspects of manpower which I have outlined are closely related to certain manpower objectives. I shall mention two of these: 1) the effective use of manpower, and 2) the full use of it. You are all acquainted with these. The first objective suggests that people should be allowed to develop and contribute according to their varying potential. The second objective implies a minimum of idle manpower resources. In turn, the achievements of these two objectives are said to contribute significantly to two major end objectives: 1) that of economic growth, and 2) that of rising real per capita income.

This kind of orientation would seem to imply that research on manpower must be policy directed or directed toward policy. This is not likely to happen except in governments. However, in view of a firming of the assumption that the processes which prepare, allocate and adjust manpower can be improved upon and so contribute to economic growth, any relevant research information that will throw light on how this can be achieved, is likely to be used to set out new manpower policies or revise old ones.

Our additional knowledge of manpower, provided from fresh fields of research, can also have many other uses. It can have relevance to

monetary and fiscal policies; it can be important to tariff policies, by improving our insights about wage costs, for example, in companies that are competing with foreign firms, etc. New and improved information about manpower may be important to private decision makers. A great deal of research also needs to be done on manpower before we can produce a sound theory of manpower allocation and utilization.

In retrospect, I think we must agree that the major contributions of economics have been on the side of demand for goods and services. Moreover, over the years as the understanding about demand increased, governments began to experiment with policies designed to stabilize demand and very recently, as you know, have toyed with the possibility of being able to accelerate the long-term growth in demand. Partly as a result of these preoccupations by governments, the notion has come that manpower can play a more effective role than it does at present. However, this notion is still a hypothesis which needs further testing. To do so will require more research and analytical work.

Ideally, before I outline the research possibilities respecting the preparatory and allocational aspects of manpower, I should provide a fairly detailed background of information showing the dynamics of the demand side for manpower. I am going to provide you with just a few statistics so as to remind you of this important aspect of the economy because both the preparatory stage and the allocating function must be examined in the light of the dynamics of the demand for manpower. By and large, I am going to assume that you are all aware of the various developments and changes over time and the influence on occupational demand by such factors as technological change, automation, industry shifts, etc. The few statistics I shall provide relate to the period 1951-61 and percentages are given in whole numbers. For example, while all occupations increased by about 22 per cent over this period, the white-collar group increased by 45 per cent. Within this white-collar group the professional workers showed a 65 per cent increase, clerical workers also showed an increase of 65 per cent and the commercial workers increased by 41 per cent. The so-called manual groups of occupations rose only 13 per cent, the manufacturing occupation 14 per cent, transportation and communication 20 per cent, while labourers declined by 2 per cent. The service occupations increased by 53 per cent, while the primary occupations declined 21 per cent.

As might be expected, a finer breakdown of these groups revealed even greater differences in the rate of change. I shall not bore you with

a detailed recitation of these differences. You may find some of this information in the Federal Department of Labour pamphlet entitled « Occupational Trends in Canada 1931 to 1961 ». I was struck however by the fact that, of the 36 occupations we have examined in the white-collar group, all showed increases, although these varied from 3 per cent in the case of photographers to an increase of 158 per cent in the case of office appliance operators and 159 per cent in the case of service station attendants. This trend was true also in all but two of the 15 service occupations we examined. The two negative quantities were for porters and motion-picture projectionists. On the other hand, from the 62 manual occupations examined we find that 22 of them declined; the decrease ranged from 2 per cent in the case of the labouring group to 50 per cent in the case of coremakers. The increases ranged from .1 per cent in the case of wood sawyers to 136 per cent in the case of aeroplane pilots and navigators, and 140 per cent in the case of construction inspectors. All primary occupations declined considerably except one, that of forest rangers and timber cruiser, which increased by 50 per cent.

No doubt a finer breakdown might yield even greater variations among the 16,000 occupations which the census recognizes. These changes refer only to quantitative changes. What we really need now is a handbook on the vast amount of qualitative changes which occur in occupations over time, in addition, of course, to the emergence of new occupations. It should also be noted that substantial changes frequently occur in the complexity level of an occupation without any change in its name.

### **The Preparatory Aspect of Manpower**

Before I pass on to a discussion of the preparatory aspects of manpower, let me make a couple of assumptions. First, that investment in the preparation of manpower is mainly for the purpose of preparing them for jobs; secondly, that technology, competition, and rising real income largely determine the composition and level of skills required by the economy, and hence the kind of manpower preparation required. These two assumptions which, in fact, could serve as hypotheses, could be tested profitably through research.

We can distinguish three basic ways of initially preparing manpower for jobs. First, there is the academic aspect which, for example,

prepares some professional people directly for jobs. However, a major proportion of academic effort is expended in preconditioning a large portion of manpower to enable persons to prepare for jobs, either formally or informally within industry, or in particular job oriented schools such as vocational schools, trade schools, technical schools and institutes, teachers colleges, etc. More information about a number of aspects of this activity would be helpful. For example, apart from the over-all question of whether we should invest more or less in total on this activity, it is necessary to look for answers to such questions as:

1. Are we allocating this investment most effectively?
2. What are the processes through which investment is allocated between the various approaches used in preparing people for work?
3. For those who need training preparations, particularly of the non-professional type, what is the net economic advantage of preparing them in schools or in industry? What, precisely, should this division be if there needs to be a division?
4. One rather important question which we might fruitfully explore is, what are the processes or what is the mechanism by which the institutions responsible for preparing people for work adapt to the changing requirements of the economy? If the needs of the economy for manpower change rapidly and if the institutions respond slowly to these changes, isn't this likely to develop a series of disequilibria between what the economy requires and the quantities and the qualities of manpower turned out by these institutions. We seem to know very little about this mechanism of adaptation by the schools.
5. A related area of research might be in a study of what are the channels of the mechanism by which industry transmits its needs to the school systems. That is, how do new technology, new techniques, new ideas, many of which have been developed within industry or at least applied by industry, flow from industry to our school systems. Surely this is an extremely important function and one we do not know very much about.

I shall deal with the allocating function later, but I suppose the beginning of that function takes place when people are being prepared for the world of work. In fact, we can distinguish two necessary allocating functions at this stage, although we do not know very much about either one of them. First, there is the intriguing question about how

youth becomes appropriately distributed through our school system along the lines of their varying potentials and capabilities. What are the processes which allocate them in line with their intelligence, aptitude, etc. Is this an effective process at present? Secondly, there is the related process or processes by which young people are preconditioned by the school system to the world of work and what facilities exist which enable them to make a rational occupation choice and so make a direct rather than a random transition to work. We must know more about the existing processes before we can suggest changes in these processes which might improve the function. It may be, for example, that inadequacies in the last two functions are primary reasons for the large number of drop-outs from school. The Economics and Research Branch of the Department of Labour is, in fact, making plans this year for a major investigation of these latter aspects. Obviously, the better this function operates, the earlier and more effectively can people start their careers in what they are most suited for and desirous of doing.

These are some broad questions about which something is known, but not nearly enough to make wise decisions that could help to make our large investment in preparing people for work more effective.

It will be appreciated that, while this stage of preparing people for work is extremely important, the processes by which manpower advances to the level at which people fully utilize their potentials is equally important. There are some fascinating research areas in this aspect of manpower but, as I mentioned earlier, I shall not deal with it at this time. There is one question in particular which interests me personally in this area. For example, what facilities has society provided and to what extent do the working people maintain or enhance their academic knowledge during their working careers? The little probing we have done, which is very limited, suggests that a great many workers participate in night schools, correspondence courses, special classes given in industry, etc. Who are these people? What are the motivating forces for this? How much is it related to level of technology? How much can be attributed to missed opportunities at the preparatory stage for work? How sufficient is it? etc.

### **Forecasting of Manpower Needs**

One of the most frequently asked questions of recent years by those who are preparing people for work and others is, « What do we prepare people for? » More specifically, in what quantities do we turn



out people for occupations, etc., for the next year, five years, or ten years from now, depending on the lag time in the preparations for various occupations?

Forecasting is, of course, a highly fascinating activity which has caught the fancy of so many. In fact, because of this fascination and because it is a relatively new activity, there are probably fewer experts and more quacks in this field than in almost any other. Lack of information and understanding about the functioning and flexibility of the labour markets, and lack of understanding about the problems of forecasting, tend to lead to a great many naive questions about what this activity can do.

This does not imply that the role of forecasting is not an important one. I believe that if the forecasting activity generates, as it is in fact doing, a greater need for continuous and more solidly based diagnoses of the functions of the economy and also leads to extended research into such matters as the allocating and adjusting functions of manpower, then forecasting may ultimately make a real contribution.

In any case, this telescopic type of research, which examines time horizons of five to fifteen years hence, has only recently become a regular activity in this country. However, I suspect that it is not only here to stay but is likely to expand and gradually become operationally useful to various decision makers, both in the public and private sectors of the economy. Unfortunately so far, and I suspect for some time to come, the forecast errors are larger than the marginal changes taking place in the economy.

I am not going to bore you with the many pitfalls and all the gaps in information associated with long-range forecasting. However, I shall mention two fairly specific areas where some research on the manpower side is required. One of these concerns the demand estimates for manpower, given the estimates of output. Once the growth rate of real output of goods and services has been estimated, the growth rate of employment is estimated by allowing for productivity changes. The difficulty is to know what sort of productivity rate does one allow for, over a five — to ten-year period. Experience of the past seems to indicate that this rate will change under various circumstances from being negative to showing varying positive increases. This is particularly true with respect to any one industry. Is there any way of tying

this factor down to two or three other variables so that when these variables have been estimated for the future, the size of the productivity factor becomes automatically known. For example, at the aggregate level we know that, all things being equal, productivity relates to the industrial composition. How closely does it relate to the growth and kind of investment? How about its relationship to the rate of growth in general or by industry? How about its relationship to the level of unemployment or the degree of disequilibrium in the labour markets? I think it is important to explore this area if we are ever going to achieve any very useful estimates about the emerging need for total manpower.

One other troublesome area in forecasting demand for manpower is that of estimating participation rates over time. Participation rates are a function of both demand and the level of unemployment. However, we do not know the precise relationships of these three variables. We know, for example, that participation rates are related to kind of demand and rate of growth in demand, but no precise relationship has been worked out. Similarly, we know that kind and rate of demand affects the level of unemployment. For example, we know that if the adult population expands at a certain rate and that if demand for females is constant and the demand for males exceeds the growth of adult males, male participation in the population will increase marginally, and unemployment will fall; female participation will tend to be stable, with unemployment for females up marginally. On the other hand, under the same population assumption, if demand for females increases while demand for males is constant, participation rates for females will increase in line with demand, female unemployment may drop marginally; participation rates of males on the other hand may drop marginally, while their unemployment will tend to grow in line with the growth of the male adult population.

Two other groups cause considerable difficulty for forecasters. Participation rates of youths seem to be related over time to demand as well as to rising income and public policies respecting education and training. For example, their participation has been declining during most of the post-war period, including the rising demand period of the past three years. The older groups are affected by a number of factors apart from demand such as adequacy of pensions, rising level of health and health care, rate of obsolescence in skill, the level of unemployment for other groups, and changes in the composition of occupations. For

example, if we all approached old age in the professional, managerial or own-account groups, participation rates of the older group would be very high. We need to know a great deal more about the behaviour of various groups of manpower with respect to demand if we are to provide any usable estimates of manpower supplies for the future.

Lack of better information about these relationships put the fore-caster in a box. For example, fairly solid output and employment estimates, after allowing for productivity changes, may be provided in some detail for a period of say ten years. The usual approach then, after allowing for demographic changes, is to either extrapolate participation rates or, at best, take into account the kind of demand or other factors and so produce the manpower supply estimates. The differences between employment and total supply will then be the residue or unemployment. But this approach has ignored the effect on participation rates of unemployment, which in fact may be very serious. A temporary solution for this dilemma is to assume a priori an unemployment rate, then produce the estimated labour force which calls for a given rate of growth, having allowed for productivity. This at least recognizes the effect on participation rates by an implied demand and a given level of unemployment. The trouble with this approach is that, if the growth rate does not achieve the assumed unemployment rate, participation rates will fall and the labour force growth will be somewhat less than expected. In other words, a great deal of research work seems to be needed in this area in the future.

### **Allocation of Manpower**

The next aspect of manpower which I am going to explore for research possibilities is associated with manpower allocation. How does manpower become distributed in such a complex economy as ours? I suppose the question here is not so much a matter of the allocation that takes place, but how effectively and efficiently allocation is brought about.

Before we examine and raise questions about the process or processes which allocate manpower, we ought to recall the character of demand over time and a few basic characteristics of manpower.

On the demand side, the product mix changes rapidly over time, new products are introduced, services expand and proliferate as real

income increases, advances and changes take place in technology, etc. This expanding and changing division of labour has produced thousands of occupations which, over time, expand or contract or change their complexity and, as I have mentioned earlier, they do so at differential rates with respect to time and place. That is, the demand for any particular occupation can change with respect to time and place.

### Characteristics of Occupations

One basic character of the occupations themselves is that their range of complexity is extremely wide in an economy where technology has advanced as far as it has in ours. Broadly speaking, we can distinguish three categories of occupations when classified according to physical and mental requirements: 1) those that require different levels of physical strength and/or dexterity; 2) those that require different levels of mental skill; and 3) those that require a mixture of both. I do not need to prove that the first category of occupations has declined significantly over the past years and that the second group has expanded, and also that the range in the level of complexity of the second class is greater than in any of the other, and is expanding in line with technological advances. It is more difficult to assess the trend in the third category and what may happen to it. Undoubtedly, the expansion and proliferation of the service industries has so far made this group very important. It may be that as automation invades this sector of the economy, the physical aspects of these occupations will be replaced by new characteristics. In fact, automation seems to introduce a new dimension of activity which is difficult to classify in the above categories. Where do you place an activity which demands «keen and responsible observation»?

There is one basic question about the thousands of occupations which should be raised because of its relevance to our next discussion about the characteristics of manpower and manpower allocation. That question is given that occupations reflect levels of complexity, how many are functionally related, how many are not, that is, are they unique, how many overlap in varying degree? For example, we distinguish occupations such as taxi driver, bus driver, truck driver, tractor driver, etc., but how unique is the complexity level of all these. I think this would be a research area well worth exploring.

## Characteristics of Manpower

I shall make only a few brief comments at this stage about the characteristics of manpower. I will mention the most obvious first. It is evident that the range of intellect and other capabilities of manpower seem to be extremely wide judging by the fact that it is man after all who promotes and performs these activities. However, given the hierarchy of activities, that is, levels of complexity, and given that manpower is distributed to and performs at all these levels, how rigid or flexible is the fit between the man and the job from one level of complexity to the next, and between jobs. I think this is an important concept, both in relation to allocation and for efficiency and costs. Generally speaking, at any one time, a man at the top complexity level could perform at any level down to the bottom, but a man at the bottom could not perform very far up the ladder. That is, in terms of ability to perform at different levels of complexity, manpower is flexible in the downward direction but much less so in the upward direction in the complexity range. However, the amount of substitution possible in either direction under varying circumstances is not known. For example, an engineer may work as a technician, but it is doubtful how many of the engineering duties a technician can perform.

Another important characteristic of manpower is its ability to widen and improve its performance through experience. I referred to this experience factor earlier as the second stage in preparation of manpower. This factor contributes to the upward mobility within manpower. It also determines the degree of flexibility of manpower at any one time.<sup>1</sup>

We are aware of these characteristics but we do not know the role they play in the short — and long-run allocation of manpower under different levels of unemployment.

## Allocation of Manpower in the Long-Run

I suppose one of the most intriguing questions to be considered and investigated is how manpower is allocated over time. Some how it seems to get done, but we know little about how or how well it is done.

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(1) i.e., the substitution possibilities among the inexperienced are fewer than among the experienced manpower.

It has not been for the lack of trying, as the childless couple said, but we are still without any clear and indisputable explanation about what the process or processes or mechanism are which bring about the allocation. We do have the competitive price theory of manpower (or labour), but the literature abounds in hypotheses, most of which have been tested to show that the price theory may be inadequate. Recently, as you probably know, some European experts in this field have made the hypothesis that the price of manpower plays little or no role in its allocation. I may be interpreting these people wrongly but from what I gathered in discussing this matter with some of them, I got the impression that it is not so much a matter of whether or not the price mechanism allocates manpower as the fact that it may do so very ineffectively. Since those who prepare people for work do not possess sufficient information about what the economy will require in the future, the fit between what is required and what manpower is being prepared may be very poor. Secondly, various rigidities in the system may cause the price of manpower to go up unnecessarily, they would claim.

It may be, of course, that the allocation processes are so heterogeneous that no consistent theory is in fact possible. I am not going to hypothesize about this. I simply want to suggest areas where we may gain something from research, and particularly research which will attempt to test human behaviour and explore human characteristics. I am a little skeptical of the continuing testing of hypotheses by using existing statistical data in this field because of the many interrelated variables, for many of which we have no statistical measurements.

First, let me review the problem briefly in a static setting. On the one side, we have thousands of recognized occupational activities with a wide range of complexity. Each delineated activity has a price tag or a remuneration tag attached to it. On the other side, people with widely unequal capabilities are educated, trained and «experienced» at different levels of intensity to perform these activities. We shall assume that, at present, an optimal fit exists between these at levels which have cleared all markets.

Let us now assume that, over the next ten years, no quantity or quality changes occur in the activity levels and that all that is required is to replace the natural loss of manpower through death and illness. Suppose this amounts to 50,000 per year for Canada and that the growth of manpower is also 50,000. This situation would simplify the education and training problems as well as the allocation one.

The real world, of course, is never as simple as this. Over the next ten years, the requirements of the economy are likely to be large. In addition, judging by the decade 1951-61, the occupational quantities and qualities wanted are likely to vary widely owing to the general expansion, plus technological advances and changes and competition. Various growth centres may accelerate or slow down; new ones may emerge, etc. The question now is, how is the new manpower supply, plus those who, in one way or another, become redundant, to be allocated appropriately in line with the changing requirements. We know that these group changes are large. For example, a monthly reading some years ago of gross movements of people — that is, the number entering and leaving the labour force — showed that in one year over 1.3 million entered, while about 1.1 million left the labour force. Of course, due to the seasonal patterns of our economy, many of these were repeaters. Unfortunately, we do not know how many of the new entrants moved geographically or why or how many of the experienced redundant group took the same or different jobs, or how many of these and others moved elsewhere and took the same or different jobs. We do not know how much occupational or spatial mobility is required by our economy over time but we suspect it is larger than many people assume. I also suspect that this movement could be significantly reduced by increasing certain short-run adjustments.

In any case, some form of allocation will take place over the next ten years and we must presume that the price tags will have something to do with performing this function. How effective allocation will be and what it will cost, we do not know. How effective and how costly it turns out to be may be related to the following question: 1) To what extent do the price tags reflect competitive processes? 2) To what extent do the price tags prepare the kind and quantities of emerging manpower needed over the long haul? 3) To what extent do the price tags distribute the quantity and quality of adult manpower needed to meet the changing requirements of the economy? 4) To what extent is the need for allocation met by misuse of manpower? 5) What variables promote and limit mobility of the appropriate kind of manpower? 6) What flexibility exists in the system which adjust for lack of appropriate allocation?

These are just some of the questions related to manpower allocation on which further or new research can fruitfully be done. I shall make a few observations about each of these questions.

1. The price determination of labour has received a lot of attention, especially in the post-war period; many of the scores of ad hoc examinations on the manpower-price-behaviour have helped to throw light on how the price of labour may deviate from the competitive hypothesis. However, no consistent theory has yet emerged. Of course, manpower allocation of some sort will take place whether the price tags represent competition or administrative pricing processes. It is assumed, at the least, that more misuse of manpower will occur under the latter than under the former.

I do not intend to enter this controversy. However, I would suggest that we put some effort in testing price determination for certain occupations or groups of related occupations with respect to the extent to which the following variables establish and affect the price of these occupations over time:

- a) the degree of price elasticity of goods and services;
- b) the ratio of capital to labour, which I believe to be very important;
- c) the condition of supply over time, and especially the degree of interchangeability of certain manpower supplies;
- d) the institutional effect, both public and private.

2. The second question is directed towards what role the price tags play over the long haul in the case of those who are preparing themselves for work. In the absence of knowledge about demand or the price in the future, how effective is the price allocating factor, particularly for those occupations requiring long lead time of preparation? What other factors beside price determine the distribution of the emerging supplies of manpower? It would appear that this is an interesting area for examination. An intelligent choice of an occupation demands adequate knowledge about it. One wonders how much information there is on which to make a logical choice particularly for those who must invest a great deal of time and money over several years in preparing themselves.

3. The third question. What role the price of manpower plays over time in distributing or redistributing the adult workers? This poses other questions. What age groups do the shifting? How many shift out of jobs in one industry to another, and at what level of



complexity? How many move from one place to another? How much allocation takes place over time between the ranks of the unemployed and long-term changes in demand? How much of the shifts are in response to price, job security, place location, etc.?

4. The fourth question. To what extent manpower is misallocated. This may happen for two main reasons. First, the prices of manpower may tend to reflect strong imperfections in the markets. Under such conditions an otherwise perfect allocation will produce a certain degree of misuse of manpower. Secondly, misallocation can occur because manpower may respond to other incentives than the price. There seems little doubt that high quality manpower in one place of the country may be receiving a lower price than an average quality of manpower in another. While this condition is more obvious in the short run and tends to become sorted out over the long haul, it is amazing how persistent it tends to be. To the extent it exists to that extent allocation is imperfect and manpower is being misused.

5. The fifth question. What factors tend to promote mobility and what factors tend to limit it. We can distinguish three kinds of mobility. First, there is an upward mobility in terms of work complexity. Actually, we can distinguish two types of this kind of mobility. There is the upward movement over time in the level of complexity which is related to the advance of science and expanding know-how, and there is the second type of upward mobility of manpower which occurs after its initial doze of education and training. No doubt, income, job security, and prestige play an important role in promoting the latter kind of mobility. No doubt, also, the strength of these and possibly others depend on the individual and the circumstances. It is more difficult to sort out those factors which produce such a large residue of those who do not participate in this upward mobility. We know far too little about these people. Factors such as lack of ability, inadequate initial schooling and economic and social circumstances may play a role in preventing these people from moving upward.

Next, we can recognize a sideways mobility. I shall define this kind of mobility as the movement of people among two or more jobs having roughly the same level of complexity. This is a very important aspect of the need for short-run adjustments to the changing demand, but which also contribute to the longer run allocation process. We do not know the extent of this, but it is likely to be considerable especially

among the various professional groups of manpower, including the managerial group and among those who work at the lower levels of job complexity. Again, we do not know much about the magnitude of these moves or why people make them. It may be that the price tag is a determinant of these moves in the short run, but that job security and « prospects », whatever that implies, operate strongly in the longer run.

The third type of mobility is the spatial one which means that people move physically, ranging from a few miles to a thousand or more miles. We know that a great deal of such movements take place judging by the differential growths in the labour force at local, provincial and regional levels. We also know that a two-way flow exists but that the net flow is in favour of certain locations, provinces or regions. We know also that the young, especially those best prepared for work, are more mobile than older experienced age groups. While for some of the young this movement is of a random variety, others no doubt move in response to price and job prospects and location of their liking. The movements of the young help to meet some of the needs for both short — and long — term mobility. But people from the older age groups also move. In some cases, it may be in response to price, but frequently also for other reasons, a dominant one being to move from no job security or at best poor job security to a place of job security or more job security.

While spatial mobility is considerable in terms of numbers, the question is, is it enough and does the price bring forth the kind and quality of manpower which the expanding and changing economy requires, and which should help to maximize the use of manpower and minimize its cost. This implies that a part of manpower is immobile. There appear to be two groups of these in terms of reasons for immobility: 1) those who want to move — some probably irrespective of the market price — but who, for financial reasons, cannot move; 2) those who, in terms of the market price, would appear to gain by moving but who, for various reasons, do not. These people would seem to range from those who keep an eye on the market to those who are almost totally uninterested in moving, although their services might bring a considerably higher price elsewhere.

I suspect that one of the crucial and fundamental questions we should consider for examination in the future is what causes immobility and whether it is on the increase. We know about group 1 — those

who are financially handicapped. We know something about the sociological factors of the second group such as the roots in the community, and the ethnic and religious factors. It may be that the affluent society is developing new factors which may be increasing immobility. For example, there is, the increasing emphasis on schooling and training, and the tendency is for these facilities to be clustered in specific places. This may reduce mobility and even cause the wrong kind of mobility particularly in terms of quality of manpower.

Equally, or possibly even more important, are the expanding economic factors leading to immobility. These concern the possibility of raising income for the family as a whole, through such avenues as multiple jobholdings and the earning possibilities for various members of the family. Usually, these arrangements are worked out over time and might be difficult to duplicate in another location. Consequently, even if the head of the household could improve his own income substantially by moving, he is not likely to do so.

There is also an intriguing question about how the accumulation of assets among labour force members is affecting mobility.

I believe the time has come to re-examine and test the behaviour of people with respect to the market. We must test to see what motivates those who move and who they are, and we must test the motivation of those who do not move and who they are. The best way of doing this is by way of direct field research. An adequate sample of manpower, say those with at least 20 years' experience in work, might be interviewed. Such research might provide useful insights into the factors which induce people to move and the processes involved. It would also throw light on the factors which may tend to reduce mobility. The study would not tell us if mobility is sufficient or if it is of the kind which meets the expanding and changing needs of the economy. In this case, I shall only propose the hypothesis that, over the long haul, sufficient manpower mobility may be generated, but it may be at a price. If immobility is increasing in relation to the demand for the economy, the price of labour is likely to be higher than if more mobility existed; and if the wrong kind of manpower moves the cost of manpower is likely to rise by virtue of lower productivity. Obviously this is a much more difficult problem to resolve than the first one.

6. The last question I raised concerned the flexibility of the system which tends to adjust in various ways to inadequate or inappro-

priate allocation. Some of these adjustments refer more to the shorter run. However, over the long haul, inadequate and especially inappropriate allocation of manpower may in part be responsible for the substitution of capital for labour. It may, in part, create consistent pressures for bringing in immigrants to fill gaps; it may, in part, be responsible for the interest of industry in training arrangements, although this is apt to be less than would have been the case if no immigrants were available. Also, in part, poor allocation may induce public authorities to expand training activities. In this connection, one wonders why an equal emphasis has not developed for inducing more mobility.

Several short-run adjustments are possible in industry. These are generally related to the state of demand in the economy and various changes in industry. When there is a surplus of manpower, a high quality manpower may be used in lower complexity jobs. This can be achieved in various ways through slowdown of promotions and/or raising hiring standards or through transfers, reduced overtime, etc. This situation can exist for some time if surpluses of manpower persist. When these conditions exist, employed manpower is being underutilized. On the other hand, when manpower is scarce, promotions may be speeded up, hiring standards lowered and overtime increased. When this occurs, manpower is overutilized and may lead to cost increases because of reduced efficiency. Of course, the range of flexibility of the latter is much less than in the case of the former. The latter situation may also induce or speed up such activities as training, re-training, upgrading, etc.

### **Concluding Remarks**

As you can see, there is an unlimited scope of research on manpower. In conclusion, I shall direct your attention to a few broad questions which I have dealt with before.

1. We ought to continue our investigation of the price determination or price determinants of manpower but possibly on a broader base of research.

2. We ought to examine what role the price of manpower plays in allocating people among jobs. We have three hypotheses before us.

- a) the competitive hypothesis; b) the modified competitive hypothesis; and c) the one that claims that the price of labour plays no role in distributing manpower.

3. We should re-examine the motivating forces which make some people mobile and others immobile.

4. We ought to improve our technique and ability to predict where the economy is going and what its manpower requirements will be.

5. We ought to know more about the relationships between the world of work and the institutions which prepare people for it. How adaptable are these institutions to the changing need of the economy and, equally important, to the changing needs of the individual.

6. We ought to examine more closely, with respect to the long and the short runs, how well manpower adjusts to changes in the economy but also how the economy changes to manpower. I would suggest that this two-way adjustment process might have considerable relevance to the economic costs of manpower and as well as to its social cost.

7. Lastly, and related to the previous point, it would be useful to investigate what the relationships may be between the short-run manpower adjustment processes which persist over time and the long-run distribution or allocation of manpower.

## **MARCHÉ DU TRAVAIL ET MAIN-D'OEUVRE: QUELQUES LACUNES DE L'ÉTAT ACTUEL DE LA RECHERCHE SUR CE SUJET**

La tâche qui m'incombe consiste à signaler la faiblesse actuelle de notre compréhension du marché du travail et à indiquer quelques secteurs où une recherche systématique s'avère nécessaire.

La recherche sur la main-d'oeuvre et le marché du travail pourrait couvrir les trois aspects suivants : 1) la préparation des jeunes pour leur entrée éventuelle sur le marché du travail ; 2) les mécanismes et processus qui facilitent l'allocation de la main-d'oeuvre en longue période ; 3) les mécanismes d'ajustement de la main-d'oeuvre à des changements inattendus en courte période.

Ces aspects de la recherche sont étroitement reliés aux objectifs qui s'insèrent dans une politique d'emploi. L'utilisation efficace de la main-d'oeuvre en donnant aux individus la possibilité de se développer et de contribuer selon leurs capacités et la réduction au minimum des ressources non-utilisées constituent deux de ces objectifs. La réalisation de ceux-ci pourrait être facilitée en communiquant les résultats de la recherche au gouvernement en vue de ses décisions en matière de

politique fiscale et monétaire et aux dirigeants de l'entreprise privée en vue de leurs décisions concernant leur besoin de main-d'oeuvre.

La préparation des jeunes pour le marché du travail comporte une période de formation théorique et pratique. Diverses institutions comme les écoles de métiers et d'apprentissage, les écoles techniques, les écoles normales, les programmes d'entraînement au sein de l'entreprise privée et les cours du soir exercent une influence sur l'orientation des individus à l'endroit du marché du travail. A ce stage, on doit s'interroger sur l'allocation efficace des investissements qui maintiennent ces institutions, par exemple, une préparation au sein de l'entreprise serait-elle plus économique que celle offerte par les écoles? On pourrait aussi investiguer la façon dont ces institutions s'adaptent aux changements technologiques et sociaux, et les mécanismes par lesquels l'industrie transmet aux écoles ses besoins de main-d'oeuvre. La recherche pourrait porter aussi sur la façon dont les jeunes se répartissent au sein de ces écoles selon leurs aptitudes et la façon dont les écoles influencent le choix d'une carrière.

Les prévisions à long terme de la demande pour la main-d'oeuvre peuvent influencer les individus dans le choix d'une occupation. L'exactitude de ces prévisions peut être améliorée par une étude des relations entre le taux d'accroissement de la production nationale et le taux des investissements, par un estimé du taux de participation des individus à la force de travail.

Les facteurs qui conditionnent l'allocation des ressources humaines en longue période constituent un deuxième secteur offrant des possibilités pour la recherche. Auparavant, la recherche doit se faire au niveau des caractéristiques des occupations et de la main-d'oeuvre. Ensuite, on doit s'interroger sur l'efficacité du mécanisme des prix qui préside à l'allocation de la main-d'oeuvre. Puisque ceux qui se préparent à entrer sur le marché du travail ne possèdent pas une connaissance adéquate des exigences futures de l'économie d'un pays, l'ajustement entre ce qui est exigé et ce qu'on prépare maintenant peut s'avérer très mauvais. L'efficacité du mécanisme des prix peut être reliée aux points suivants: Dans quelle mesure l'établissement du salaire pour une occupation donnée reflète-t-il une situation de concurrence? Dans quelle mesure les taux de salaires influencent-ils la formation d'une main-d'oeuvre en qualité et quantité adéquates? Dans quelle mesure les taux de salaire conditionnent-ils la répartition de la main-d'oeuvre nécessaire pour parer aux exigences toujours changeantes de l'économie? Quels sont les facteurs qui expliquent la mobilité spatiale et occupationnelle de la main-d'oeuvre? Quels sont les correctifs qu'un système peut offrir pour enrayer l'inefficacité de l'allocation de la main-d'oeuvre?

Plusieurs ajustements de courte période sont possibles et la connaissance sur ce sujet ne manque pas. On pourrait certainement effectuer une recherche fructueuse dans les deux secteurs précédents, mais il serait aussi utile d'étudier les relations entre les mécanismes d'ajustement de courte période et ceux de la distribution de la main-d'oeuvre en longue période.